

WHAT IS CLAIMED IS:

1. A method of forming fine patterns comprising: subject-
ing a substrate having photoresist patterns to a hydrophilic
5 treatment, covering the substrate having photoresist patterns
with an over-coating agent for forming fine patterns, apply-
ing heat treatment to cause thermal shrinkage of the over-
coating agent so that the spacing between adjacent photore-
sist patterns is lessened by the resulting thermal shrinking
10 action, and removing the over-coating agent substantially
completely.
2. The method of forming fine patterns according to claim
1, wherein the hydrophilic treatment is performed by applying
a hydrophilic solvent on the substrate having photoresist
15 patterns.
3. The method of forming fine patterns according to claim
2, wherein the hydrophilic solvent is at least one member se-
lected from the group consisting of pure water, a water-
soluble surfactant aqueous solution, and an alcohol aqueous
20 solution.
4. The method of forming fine patterns according to claim
3, wherein the hydrophilic solvent is pure water.
5. The method of forming fine patterns according to claim
1, wherein the over-coating agent contains a water-soluble
25 polymer.
6. The method of forming fine patterns according to claim
5, wherein the water-soluble polymer is at least one member
selected from the group consisting of alkylene glycolic poly-

mers, cellululosic derivatives, vinyl polymers, acrylic polymers, urea polymers, epoxy polymers, melamine polymers and amide polymers.

7. The method of forming fine patterns according to claim
5 1, wherein the over-coating agent is an aqueous solution having a solids content of 3 - 50 mass%.

8. The method of forming fine patterns according to claim
1, wherein the heat treatment is performed at a temperature that does not cause thermal fluidizing of the photoresist
10 patterns on the substrate.